

JAMES ALAN MURRAY, PH.D.

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EDUCATION:

Ph.D., Department of Zoology, University of Washington, Seattle, WA June 1994
Concentrations in Physiology, Neurobiology, Behavior, Invertebrate Biology
Bachelor of Science (B.S.) in Biological Sciences with High Honors for research, May 1988
Concentration in Neurobiology and Behavior, Cornell University, Ithaca, NY

PROFESSIONAL APPOINTMENTS:

Associate Professor, Biological Sciences, California State University, East Bay, Hayward, CA 2012 – present
Assistant Professor, Biological Sciences, California State University, East Bay, Hayward, CA 2007 – 2012
Associate Professor, Graduate Faculty, Department of Biology, University of Central Arkansas, Conway, AR 2006 – 2007
Visiting Assoc. Prof., Friday Harbor Laboratories, U. of Washington, Friday Harbor, WA Spring 2005, 2006,
Summer 2007,
2010, 2012
Assistant Professor, Graduate Faculty, Department of Biology, University of Central Arkansas, Conway, AR 1999 – 2006
Visiting Assistant Professor, Colby College, Department of Biology, Waterville, ME September 1998 –
June 1999
Postdoc/Lecturer, University of California, San Diego, Department of Biology, La Jolla, CA October 1995 –
August 1998
Postdoctoral fellow, Scripps Institution of Oceanography, La Jolla, CA June 1994 –
September 1995

COURSES TAUGHT: (NEW COURSES DEVELOPED ARE UNDERLINED)

<u>Applied Neurobiology</u> (archived course re-designed from 2007)	California State U., Hayward	Spring 2016
<u>Visual Analysis of Cellular Structure</u> (confocal microscopy)	California State U., Hayward	Winter 2014-2017
Level II Nursing Skills III (guest lecture/demo; NURS 3003)	California State U., Hayward	Spring 2012
Human Physiology and Anatomy I (BIOL 2010, 6 units w/ lab)	California State U., Hayward	Fall 2011-16
Principles of Animal Physiology (BIOL 3151, 5 units w/ lab)	California State U., Hayward	Spring 2008-17
Human Physiology and Anatomy II (BIOL 2020, 6 units w/ lab)	California State U., Hayward	Winter 2008, 2011
Animal Biology (BIOL 1403, 5 units w/ lab)	California State U., Hayward	Fall 2010
Marine Biology (BIOL 3215, 4 units w/ lab)	California State U., Hayward	Fall 2009, Spring 2014
<u>Graduate Seminar in Neuroscience</u> (BIOL 6841, 3 units)	California State U., Hayward	Spring 2009, 2010, 2015
Neurobiology (BIOL 4510/6515, 4 units)	California State U., Hayward	Winter 2009 – 2013
Biology Seminar (BIOL 4820; organizer, 1 unit)	California State U., Hayward	Winter & Fall 2009
<u>Animal Senses</u> (BIOL 4513/6513, 4 units)	California State U., Hayward	Fall 2008 – 2017
<u>Neuroethology</u> (BIO 533A; co-taught with Dr. Shaun Cain, w/ lab)	U. Washington, Seattle	Summer 2007, -10, -12, -17
Marine Biology (BIOL 3360)	U. Central Arkansas	Fall 2005 – 07
Alternative & Complementary Therapies (NURS 4325/5325; Guest lect.)	U. Central Arkansas	Fall 2005 – Spring 2006
<u>Neuroethology of Orientation Behavior</u> (BIO 499; co-taught, w/ lab)	U. Washington, Seattle	Spring 2005, 2006
<u>Graduate Seminar in Biology, Mind & Brain</u> (BIOL 6102)	U. Central Arkansas	Spring 2005
Introductory Biology Seminar (BIOL 1120; organizer in 2004)	U. Central Arkansas	1999 – 2005
Oxford Honors Tutorial (Guest speaker, interdisciplinary science)	U. Central Arkansas	Spring 2004
Scanning Electron Microscopy (BIOL 4/5250; lecture, supervised projects)	U. Central Arkansas	Spring 2003 – 07
<u>Graduate Seminar in Biology, Academic Skills</u> (BIOL 6102)	U. Central Arkansas	Spring 2003
<u>Experimental Neurobiology</u> (BIOL 4425/5425, w/ lab)	U. Central Arkansas	Fall 2001 – 04, 2006 – 07
Principles of Biology I (BIOL 1440, w/ lab)	U. Central Arkansas	Spring 2001, Fall 2002 – 06
Writing Seminar on religion (Guest speaker of Profs. Deering, Bradford)	U. Central Arkansas	Spring 2001 – 2002
Honors Seminar on memory (Guest speaker of Prof. Margaret Morgan)	U. Central Arkansas	Spring 2001
Special Problems (student research) in Biology (BIOL 3X50)	U. Central Arkansas	Fall 2000 – 2004
Introduction to Neuroscience (BIOL 3370)	U. Central Arkansas	Fall 2000, Summer 2001, 03

<u>Graduate Seminar in Biology, Skeptical Inquiry</u> (BIOL 6102)	U. Central Arkansas	Spring 2000
Structure and Function I & II (BIOL 2406, 2407, w/ lab)	U. Central Arkansas	Fall 1999 – Spring 2002
<u>Animal Senses</u> (BI398, Visiting Asst. Prof.)	Colby College, Maine	Spring 1999
Neurobiology (BI274L, Visiting Asst. Prof., w/ lab)	Colby College, Maine	Spring 1999
Comparative Animal Physiology (BI375L, Visiting Asst. Prof., w/ lab)	Colby College, Maine	Fall 1998
Systems Neurobiology (BIPN 142, Lecturer)	U. California, San Diego	Winter 1998
Laboratory Neurobiology (BIPN 145, Lecturer, w/ lab)	U. California, San Diego	Fall 1997
Animal Diversity (Zoology 220, Guest Lecturer)	U. Washington, Seattle	Winter 1994
Molecular Neurobiology (Zoology 538b, T.A./Guest Lecturer)	U. Washington, Seattle	Spring 1990 – 1994
Animal Physiology (Zoo 488, T.A. for lab)	U. Washington, Seattle	Winter 1990
Natural History of Marine Invertebrates (Zoo 330, T.A. for lab)	U. Washington, Seattle	Spring 1989
Introductory Biology (Bio 210, T.A. for lab)	U. Washington, Seattle	Fall 1988

PROFESSIONAL DEVELOPMENT:

Work Smarter Not Harder Under Semesters (Office of Faculty Development)		2017
Faculty Awareness Training on Supplemental Instruction (participated)		2016
Back to the Bay: SCAA Writing Associates Program: Embedding Writing Tutors in the Classroom (attended)		2016
Back to the Bay: Looking for Great Co-Workers: Your Job as a Search Committee Member (attended)		2016
Back to the Bay: Adaptive Learning Tools and Learning Analytics (attended)		2016
Back to the Bay: New Approaches to Learning: Programmatic Excellence & Innovation in Learning (attended)		2016
Back to the Bay: CSU Dashboards: What Do They Tell Us About East Bay?" (attended)		2016
Back to the Bay: The Blackboard Ultra Experience aka What's New (attended)		2016
Students with Invisible Disabilities, attended panel presentation, CSUEB		2015
Back to the Bay: Re-imagining Your Courses for Semesters (presented w Lindsay McCrea, David Fencsik, Julie Ste		2015
CSUEB 2015 Spring Symposium on Assessment of Core Competencies	April 17, 2015	
Faculty Group on Written Communication (assessing course writing for CSUEB Institutional Learning Outcomes)		2014 – 2015
Webinars in teaching physiology with LabTutor		2012 – 2014
Introducing EndNote X5 (Back to the Bay 2012)		2012
Alternative Learning Solutions Project (Back to the Bay 2012)		2012
How to Grade More Student Papers with Ease (Back to the Bay 2012)		2012
Strategies to Effectively Engage Students (Back to the Bay 2012)		2012
Everybody's Using Blogs and Wikis (Back to the Bay 2012)		2012
Faculty Learning Community on Teaching with Technology		2010
Helping Students in Distress - A Team Approach		2010
Student Learning Outcomes Assessment Faculty Learning Community, Spring		2009
Understanding Science Launch of "Year of Science", Society for Integrative & Comparative Biology [Boston, MA]		2009
Strategies for Effective Paper Grading (by Eileen Barrett, Nov 24, Office of Faculty Development, CSUEB)		2008
Retention Dossier Workshops (Office of Faculty Development /FCET, CSUEB) Jan 7 and Jan 10		2008
Society for Neuroscience Undergraduate Neuroscience Teaching workshop		2006
UCA Instructional Development Center seminar on anti-plagiarism software		2006
Strategies for Success workshop on teaching science, Chattanooga, TN		2005
UCA Instructional Development Center Discussion Groups		2000 – 2002
Creating an Active Learning Environment in the Life Science Classroom, NSF Chautauqua Short Course		2000
Society for Neuroscience Teaching Workshops – Hands-on Neuroscience Activities		1999 – 2006
UCA Instructional Development Center Workshops		1999 – 2002
Workshop on writing National Institutes of Health grant proposals		1999
University of California, San Diego – Preparing Professional Faculty at the Center for Teaching Development		1997
Society for Neuroscience Seminar – How to Bring Neuroscience into the Schools		1995
Society for Neuroscience Seminar – How to Talk to Children in Schools		1991, 1993

PUBLICATIONS: (MY SUPERVISED STUDENT CO-AUTHORS ARE UNDERLINED)

- (1) Shapiro NS, Choate BA, Huynh MH, Murray JA, Largoza RA, Bautista BM (in revision) The characterization of antifeedant/defensive properties of a Pacific coast opisthobranch *Tritonia tetraquetra* and its octocoral prey *Ptilosarcus gurneyi*.
- (2) Pollock I, Murray, JA, Yeager B (2017) BrainJam—STEAM learning through Neuroscience-themed game development. Extended abstract In Proceedings of International Conference on Game Jams, Hackathons, and Game Creation Events, San Francisco, CA, 7 pages. DOI: 10.1145/2897167.2897179

- (3) **Murray JA**, Wyeth RC (2015) Introduction to “Chemicals that Organize Ecology: Towards a Greater Integration of Chemoreception, Neuroscience, Organismal Biology, & Chemical Ecology”, a symposium sponsored by the Society for Integrative and Comparative Biology, *Integrative And Comparative Biology* 55(3):444-446 ID: icv089
- (4) Sevigny JL, Kirouac LE, Thomas WK, Ramsdell JS, Lawlor KE, Sharifi O, Grewal SS, Baysdorfer C, Curr K, Naimie AA, Okamoto K, **Murray JA**, Newcomb JM (2015) The mitochondrial genomes of the nudibranch mollusks, *Melibe leonina* and *Tritonia diomedea*, and their impact on gastropod phylogeny, *PLoS ONE* 10(5): e0127519. doi: 10.1371/journal.pone.0127519
- (5) Sumner-Rooney LJ, **Murray JA**, Cain SD, Sigwart JD (2014) Do chitons have a compass? Evidence for magnetic sensitivity in Polyplacophora. *Journal of Natural History* 48(45-48): 3033-3045. <http://dx.doi.org/10.1080/00222933.2014.959574>
- (6) Zazay R, Morrison JB, Redondo R, **Murray JA** (2012) Structure and function of pedal neurons controlling muscle contractions in *Tritonia diomedea*, *Impulse*, the Premier Undergraduate Neuroscience Journal. <http://www.impulse.appstate.edu/abstract-zazay>
- (7) **Murray JA**, Jones AP, Links AC, Willows AOD (2011) Daily tracking of locomotion of the nudibranch *Tritonia tetraquetra* in nature, and the influence of water flow on orientation, crawling, and drag, *Marine and Freshwater Behavior and Physiology* 44(5):265-288 ([online](#); DOI:10.1080/10236244.2011.629463)
- (8) **Murray JA**, Cain SD, Estapp JD (2006) Advances in the neural bases of orientation and navigation, *Integrative and Comparative Biology* 46(6):871-879 ([advanced online](#); doi:10.1093/icb/icl037)
- (9) Blackwell JS, **Murray JA** (2005) Neuronal responses to water flow in the marine slug *Tritonia diomedea*, *Impulse* [[Online](#) at <http://impulse.schc.sc.edu/>]
- (10) Redondo RL, **Murray JA** (2005) A single neuron serves a significant role in effecting turning while crawling in the marine slug *Tritonia diomedea* (Bergh), *Journal of Comparative Physiology A* 191:435-444 [[Online](#); [PubMed 15778839](#)]
- (11) **Murray JA** (2004) Distributing digital video to multiple computers, *The Journal of Undergraduate Neuroscience Education* (JUNE), Spring, 2(2): A62-A64 [[Online](#) at <http://www.funjournal.org/>]
- (12) Beck JC, **Murray JA**, Willows AOD, Cooper MS (2000) Computer-assisted visualizations of neural networks: expanding the field of view using seamless confocal montaging, *J Neurosci Methods* 98:155-163 [[PubMed 10880829](#)]
- (13) Kristan, WB Jr, Skalak R, Wilson RJA, Skierczynski BA, **Murray JA**, Eisenhart FJ, Cacciatore TW (1996) Biomechanics of hydroskeletons: lessons learned from studies of crawling in the medicinal leech. In, *Biomechanics and Neural Control of Movement—9th Engineering Foundation Conference*, June 1-6, 1996, Mt. Sterling, OH, USA
- (14) **Murray JA**, Willows AOD (1996) Function of identified nerves in orientation to water flow in *Tritonia diomedea*. *J Comp Physiol A* 178:201-209 [[PubMed 8592304](#)]
- (15) **Murray, JA** (1994) Neural correlates of orientation to water-flow in *Tritonia diomedea*. Doctoral dissertation, University of Washington [[UW library](#) | [Download](#)]
- (16) Libersat F, **Murray JA**, Hoy RR (1994) Frequency as a releaser in the courtship song of two crickets *Gryllus bimaculatus* (De Geer) and *Teleogryllus oceanicus*: a neuroethological analysis. *J Comp Physiol A* 174:485-494 [[PubMed 8182564](#)]
- (17) **Murray JA**, Hewes RS, Willows AOD (1992) Water-flow sensitive pedal neurons in *Tritonia*: role in rheotaxis. *J Comp Physiol A* 171:373-385 [[PubMed 1447725](#)]

GRANTS AND FELLOWSHIPS: (STUDENT CO-PIs & EXTRAMURAL GRANTS ARE UNDERLINED)

- (1) CSUEB Faculty Support Grant, “Mentoring research students in the neural control of behavior” (4WTU) Fall 2016
- (2) CSUEB Faculty Support Grant, “Quantifying gene expression and enzyme activity in the sea slug *Tritonia*” (\$15,542) Fall 2015
- (3) CSUEB Faculty Support Grant, “Mentoring research students in the neural control of behavior” (4WTU) Fall 2015
- (4) Wells Fargo Education Grant, “Game Jam with Brain Bee: STEAM learning through neuroscience-themed game development” (\$25,000) Spring 2015
- (5) CSUEB Faculty Support Grant, “Localizing synaptic contacts between sensory and motor structures in the brain of *Tritonia diomedea* using high-resolution confocal microscopy” (\$1500) Spring 2013
- (6) National Geographic Society's Committee for Research and Exploration, “Testing a novel hypothesis for how animals can use the Earth's magnetic field during short-term navigation behaviors” \$20,000 2013
- (7) Keck Foundation Undergraduate Education Program Grant, Integration of Confocal Microscopy into Science Teaching and Research, (\$250,000 from Keck, total project cost \$322,713) 2012 – 2015
- (8) CSUEB Faculty Support Grant, “Function of a novel chemosensory organ in the sea slug *Tritonia diomedea*” (\$2300) Spring 2012

(9) CSUEB Faculty Support Grant, "Tangled web: How prey toxins are used by predators for self-protection" (\$3065)	Spring 2011
(10) CSU Program for Education and Research in Biotechnology (CSUPERB) (with Drs. Sommerhalter and Amagata), " Chemical Warfare in the Ocean: How the marine slugs prey upon toxic animals", (\$15,000)	Spring 2010
(11) CSUEB College of Science Sieber interdisciplinary grant, with Dr. Monika Sommerhalter, "Chemical warfare in the ocean", (\$5000)	Winter 2010
(12) CSU COAST Collaborative Incentive Award (with Drs. Sommerhalter and Amagata), "Chemical warfare in the ocean", (\$16,009)	Fall 2009
(13) CSUEB College of Science Sieber interdisciplinary grant, with Dr. Shaun Cain, "The neuronal mechanisms of multisensory navigation using an invertebrate model system", (\$1200)	Spring 2009
(14) CSUEB Faculty Support Grant, "The neuronal mechanisms of multisensory navigation using an invertebrate model", (\$3,021)	Spring 2008
(15) CSUEB Faculty Support Grant, "Do single brain cells control speed & direction of crawling navigation?", (\$7,005)	Fall 2007
(16) UCA Instructional Development travel grant for neuroscience education workshops (\$500)	Fall 2006
(17) UCA Research Council, "The functional morphology of the ciliated sensory epithelium of the sea slug <i>Tritonia diomedea</i> ", (\$4,650)	2006 – 2007
(18) UCA Instructional Development travel grant for Strategies for Success teaching workshops (\$405)	Spring 2005
(19) UCA Instructional Development travel grant for neuroscience education workshops (\$500)	Fall 2004
(20) Arkansas Space Grant Consortium Student & Faculty Grants, "Encoding of flow direction by a simple nervous network", (co-PI with student <u>Brandon Kersh</u> , \$5,490)	2004 – 2005
(21) State Undergraduate Research Fellowship, "The control of turning in a marine slug", (co-PI with student <u>Josh Morrison</u> , \$3900)	Spring 2004
(22) UCA Foundation, "Brain Awareness Week: public lecture by UCA neuroscience profs." (PI, \$1000)	Spring 2004
(23) UCA Research Council, "Motor control by multiple brain cells ", (\$5,475)	2003 – 2004
(24) UCA Instructional Development travel grant for neuroscience education workshops (\$450)	Fall 2003
(25) NSF-Major Research Instrumentation grant, "Acquisition of a Laser Confocal Microscope for Natural Science Research and Teaching— an MRI/RUI Proposal." (co-PI, <u>\$242,737</u>)	2002 – 2005
(26) UCA Foundation grant, "Evolution or intelligent design: who decides what should be taught in the science classroom? Part Two of Challenge Week 2003." (co-PI, \$3000)	2002 – 2003
(27) UCA Research Council, "Selective ablation of brain cells involved in navigation", (\$7,667)	2002 – 2003
(28) UCA Summer Stipend, "Selective ablation of brain cells involved in navigation", (\$2,600)	Summer 2002
(29) Neural Mechanisms of Orientation & Navigation Symposium, Nation Science Foundation (PI, <u>\$8,270</u>)	2001 – 2002
(30) UCA Instructional Development travel grant for neuroscience education workshops (\$540)	Fall 2001
(31) Arkansas Science and Technology Authority, "Neural mechanisms of navigation", (PI, <u>\$28,305</u>)	2001 – 2002
(32) UCA Research Council, "Role of a motor neuron in crawling and turning", (PI, \$5,310)	2001 – 2002
(33) NSF-Course, Curriculum, and Laboratory Improvement grant, "Neurophysiology laboratory experience for biology majors and other advanced students." (co-PI, <u>\$118,122</u>)	2001 – 2003
(34) UCA Instructional Development travel grant for neuroscience education workshops (\$500)	Fall 2000
(35) UCA Research Council, "Recording neuronal signals during movement", (PI, \$13,345)	Summer 2000
(36) Arkansas Space Grant Consortium Student & Faculty Grants, "Directional flow receptors", (co-PI with student <u>Jay Vacca</u> , \$4,619)	Spring 2000
(37) UCA Summer Stipend, "Water flow receptors in a marine slug", (\$2,220)	Summer 2000
(38) UCA Instructional Development travel grant for neuroscience education workshops (\$571)	Fall 1999
(39) NIH National Research Service Award/Postdoctoral Fellowship, "Social communication and reproduction in electric fish" 1 F32 MH10705-01/Priority Score 121	1994 – 1997
(40) NIH training grant in neurobiology, "Neural basis of rheotaxis" (PHS 5T32GM07108-19)	1992 – 1994

STUDENT COLLABORATORS AND AWARDS: (GRADUATE STUDENT**)

(1) <u>Leena Priya Makani</u> ** - Biochemistry of acetylcholinesterase in <i>Tritonia</i> (with Dr. Monika Sommerhalter)	2016 – present
(2) <u>Gerardo Plascencia</u> - biochemical resistance to neurotoxins	2016 – present

(3) <u>Robert Wilt</u> - brain control of active olfaction in sea slugs	2016 – present
(4) <u>Abigail Ames</u> - how olfactory organs enhance odor detection in sea slugs (\$355 UW student travel award)	2015 – present
(5) <u>Emily Nguyen</u> - olfactory gene isolation and localization in sea slugs (CSU East Bay Research Fellow 2015-2016)	2014 – 2016
(6) <u>Yesenia S. Lopez-Ornelas</u> - olfactory gene isolation and localization in sea slugs (CSU East Bay Research Fellow 2015-2016)	2014 – present
(7) <u>Teris Oglesby</u> - how olfactory organs enhance odor detection in sea slugs (Friday Harbor Labs NSF Research Experience for Undergraduates)	2014 – 2015
(8) <u>Nicole Gallardo</u> - analysis of water flow direction in the field and how this influences slug orientation	2014 – 2015
(9) <u>Katrina-Mari Mayol</u> - analysis of water flow direction in the field and how this influences slug orientation (Internship at Fluidigm, summer 2015)	2014 – 2015
(10) <u>Chelsea Henderson</u> - orientation of crawling direction with respect to the geomagnetic field (\$1500 stipend from the CSUEB Research fellowship 2014-2015; accepted to M.S. program at U.C. Davis 15-16)	2014 – 2015
(11) <u>Celia Beron</u> - magnetic modulation of sensory receptors, motor neurons, and behavior (Friday Harbor Labs NSF Research Experience for Undergraduates)	2014
(12) <u>Osman Sharifi</u> (with Ken Curr)- genetic sequencing of <i>Tritonia</i> genomes (\$600 for supplies and \$600 stipend from the McNair Scholars Program Spring 2012-2014; \$1000 for supplies and \$1000 stipend from the CSUEB Research fellowship 2013-2014)	2014 – present
(13) <u>Crystal Vardakis**</u> - structure and neurotransmitters of the nudibranch eye (CSU East Bay Research Fellow 2014-2015)	2013 – present
(14) <u>Samantha Zacarias**</u> - sensory connections to crawling neurons (CSU East Bay Research Fellow 2013-2014, 2014-2015)	2013 – present
(15) <u>Archana Patel**</u> - effects of toxic prey extracts on the nervous system	2012 – present
(16) <u>Morgan Linney</u> - magnetic modulation of sensory receptors, motor neurons, and behavior (Friday Harbor Labs NSF Research Experience for Undergraduates)	2013
(17) <u>Heinrich Erhahon</u> - extraction of toxic chemicals from sea pens (LSAMP program 2012-2013)	2012 – 2013
(18) <u>Simar Grewal</u> - (with Ken Curr) hormone receptors on blood cells in <i>Tritonia</i> (2012 CSU East Bay Research Fellow; \$1500 stipend)	2012 – 2014
(19) <u>Homayun Saleh</u> - antimicrobial affects of sea pen secondary metabolites	2011 – 2012
(20) <u>Kelsey Wallace**</u> - hormones and their behavioral effects on <i>Tritonia</i> circadian rhythm (2011 CSUEB Graduate Student Research Grant, \$500; 2011-12 COAST Graduate Student Award for Marine Science Research, \$3000; 2012 CSUEB Graduate Student Research Grant, \$500; 2013-2014 CSU East Bay Research Fellow, \$1000 stipend and \$1000 supplies)	2011 – present
(21) <u>Beverly Choate</u> - antifeedant effects of toxic prey	2011 – 2012
(22) <u>Kea Hong Conway Tran</u> - infectious organisms found on the skin of <i>Tritonia</i>	2011 – 2012
(23) <u>Bonnibel Bautista</u> - antifeedant effects of toxic prey; B.S. 2013; applying to medical school 2015	2011 – 2013
(24) <u>Rion Largoza</u> - antifeedant effects of toxic prey; B.S. 2012; accepted to dental school 2015	2011 – 2012
(25) <u>Adrienne Blaylock</u> - effects of toxins on feeding motor program; CSU-LSAMP program 2011-2012; 2012 CSU-LSAMP Costa Rica Summer Research program	2011 – 2012
(26) <u>Altha Wong</u> - anatomy of <i>Tritonia</i> nervous system; CSU-LAMP program 2011-2012	
(27) <u>Amy McKee</u> - population genetics of <i>Tritonia diomedea</i>	2010 – 2011
(28) <u>Amanda Ahl**</u> - localization of cholinesterase in the <i>Tritonia</i> CNS	2010 – 2011
(29) <u>Diana Cha</u> - function of cholinesterase in the <i>Tritonia</i> CNS; Accepted to <i>Vanderbilt U.</i> Ph.D. program 2011	2010 – 2011
(30) <u>Madeleine Giordano</u> - kinematics of crawling in <i>Tritonia</i>	2010 – 2011
(31) <u>Cara Gallagher</u> - function of the ciliated groove in <i>Tritonia</i> ; COAST \$1000 student travel award Academic Year 2010-11; 2012 CSU East Bay Research Fellow (\$1500 stipend)	2010 – 2012
(32) <u>Lucy Ogbu**</u> - infectious organisms found on the skin of <i>Tritonia</i> ; 2011 CSUEB Graduate Student Research Grant, \$350; 2011 African American Faculty & Staff Association \$1200 Scholarship; COAST Summer 2011 Student Award for Marine Science Research (\$1500). Accepted to <i>UC Davis medical school</i> , beginning Fall 2013. Recipient of 2015 Paul & Daisy Soros New American Fellowship (\$90K)	2010 – 2011
(33) <u>Weeda Zazay</u> - <i>George Washington University</i> , Structure and function of pedal neurons controlling muscle contractions in <i>Tritonia diomedea</i> (2009 Friday Harbor Labs Blinks Fellowship)	2009 – 2010

- (34) Nathan Shapiro** – M.S. 2012, Chemical ecology of nudibranchs and prey (COAST Summer 2011 Student Award for Marine Science Research (\$1500); CSUEB Graduate Student Research Grant 2011, \$500) 2009 – 2012
- (35) Janelle Minter Orientation to water flow and magnetic fields; *OHSU M.D.* 2014 2008 – 2010
- (36) Mike Huynh- Orientation to magnetic fields and to light (CSUEB COS award for conference; CSU Louis Stokes Alliance for Minority Participation fellowship 2009-2010 (\$6700) & travel award 2010 (\$425); Friday Harbor Labs NSF-REU fellow 2010, \$1650 plus ~\$3000 in-kind board & travel; CSU-LAMP 2011 Summer Fellowship \$2000; COAST Summer 2011 Student Award for Marine Science Research (\$1500)); CSU-LSAMP 2011-2012 Academic Year Scholar \$2000 2008 – 2012
- (37) Gurinder Singh Orientation to magnetic fields and to light (CSUEB COS award for conference; CSU Louis Stokes Alliance for Minority Participation fellowship 2009-2010 (\$6500) & travel award 2010 (\$450); Accepted to *Touro U. medical school* 2010 2009 – 2010
- (38) Elise Rombough** – Using dogs to detect disease states via odors emitted from tissue samples. 2008 – 2009
- (39) Adam Jones – multisensory navigation cues. Accepted to *U. Maryland Ph.D. program* 2009 2008
- (40) Darcy Kato** – Monitoring neurons during magnetic navigation (CSUEB Graduate Student Research Grant 2009, \$300; Friday Harbor Labs Ellis Ridgway Fellowship 2009, \$2000 plus \$1106 in-kind lab fees; Dr. Earl H. Myers & Ethel M. Myers Oceanographic & Marine Biology Trust 2009, \$1000; CSUEB Graduate Student Research Grant 2010, \$300; FHL 2010 Richard Strathmann Fellowship \$2200 + in-kind lab fees ~\$500). *Ph.D. at UC Berkeley* in 2015. 2008 – 2010
- (41) Allison Sherman** – M.S. 2014, Function of single cells in turning (Friday Harbor Labs Dudley Summer Fellowship 2008, \$500; CSUEB Graduate Student Research Grant 2008, \$500; Charlotte Mangum Student Support Program \$137 in kind housing; SICB 2009 Best Student Presentation \$150; CSUEB Graduate Student Research Grant 2009, \$300; Ellis Ridgway Fellowship \$1000 plus \$678 in-kind lab fees; CSUEB Graduate Student Research Grant 2010, \$370; FHL Dudley Summer Fellowship 2010, \$1100; Harrington Outstanding University Thesis Award 2014, \$200) 2008 – 2012
- (42) Hakim Hammoudi** – Masters of Science candidate, Neural control of turning behavior Jewell Moore Summer Research award 2007 (\$1000) 2005 – 2008
- (43) Krishnapraveen Yadlapalli** – Masters of Science degree; Ciliated sensory receptors and sensory responses to water flow in the sea slug *Tritonia diomedea*. Awards: Jewell Moore Summer Research award 2006 (\$500); Alan and Marian Kohn Fellowship 2007 (\$2000). Technician at U. Arkansas for Medical Sciences 2008 2005 – 2008
- (44) Benedict Igwe – Water flow receptor structure and distribution Awards: Undergraduate Research Grant for Education 2006 (\$2000); Blinks Summer Research Fellowship 2006 (\$1300 stipend plus ~\$2000 in-kind room, board, lab fees); \$500 FHL travel award 2005 – 2007
- (45) Andy Wiles – Biomechanics and hydrodynamics of turbulence and flow around the sea slug Awards: Undergraduate Research Grant for Education 2006 (\$2000) 2005 – 2007
- (46) Emma Peters-Jacobs – Structure and function of water flow receptors Awards: Undergraduate Research Grant for Education 2005 (URGE) (\$3451); URGE 2006 (\$2000) M.D. from University of Arkansas for Medical Sciences 2010 2003 – 2006
- (47) Matthew Johnson – Computer modeling of a neural network for navigation Awards: Blinks Summer Research Fellowship 2004 (\$1500 stipend plus ~\$2000 in-kind board, fees) 2003 – 2004
- (48) Brandon Kersh – Scanning electron microscopy of ciliated receptors on *Tritonia* skin Awards: Arkansas Space Grant (\$5490); Jewell Moore Summer Research award 2004 (unable to accept for personal reasons), deceased 2007 2003 – 2005
- (49) Clint Smith – Activity of flow receptors in identified nerves 2003
- (50) Joshua Morrison – Single neuron involvement in crawling Awards: Jewell Moore Summer Research award (\$700); Faculty for Undergraduate Neuroscience travel award (honorable mention); UCA Undergraduate Research Grant for Education (\$2000); Summer Undergraduate Research Fellowship (\$3900). M.D. from University of Arkansas for Medical Sciences 2009 M.D. 2009 – University of Arkansas for Medical Sciences 2002 – 2005
- (51) Martin Erwin – Genetic analysis of populations of *Tritonia diomedea* Awards: Jewell Moore Summer Research award (\$600) M.S. in paleobiology U. Nevada Las Vegas 2001 – 2003

- (52) Jeffry Blackwell– Honors College thesis "Neuronal Responses To Water Flow In The Marine Slug *Tritonia diomedea*", M.D. 2007 2001 – 2003
Awards: Undergraduate Research Grant for Education (\$3000)
M.D. 2007– University of Arkansas for Medical Sciences
- (53) Jessica Alexander-Estepp– Biology Department Honors thesis "Mechanisms and Kinematics of Turning While Crawling in the Marine Gastropod *Tritonia diomedea*" 2002 – 2003
Masters of Biology 2005– U. Southern Mississippi (now a medical lab supervisor)
- (54) Roger Redondo**– Masters Degree with thesis "A Single Neuron Serves A Significant Role in Effecting Turning While Crawling in the Marine Slug *Tritonia diomedea* (Bergh)", 2001 – 2003
Awards: Libbie Hyman Summer Research Fellowship (\$650); Biology Dept. 2001 Summer Research Assistantship (\$2500); Walter Morris Award for Best Student Poster 2002 AR Society for Neuroscience meeting (\$100); 1st place Life Sciences oral presentation AR Academy of Sciences (\$100)
Ph.D. 2009– U. Edinburgh 2009; post-doctoral fellow at MIT
- (55) JC Dorsey– Differences in radula microstructure between populations 2001
- (56) Cameron Good– Control of the foot by an identified motor neuron in *Tritonia diomedea* 2000 – 2002
Awards: Faculty for Undergraduate Neuroscience (\$400) and UCLA (\$100) travel award (1st place); 3rd place for Life Sciences oral presentation at the 2001 Arkansas Academy of Sciences meeting
Post-doctoral scientist– National Institute of Drug Abuse
- (57) Jay Vacca– Directional flow receptors: role in reducing drag 2000
Awards: Arkansas Space Grant (\$4500). Bureau of Land Management wildlife biologist
- (58) Annie Links– (U. Washington)– Orientation into water flow reduces hydrodynamic drag in *Tritonia diomedea*; M.D. 1995– U. Washington 1994

MASTER DEGREES: (AS PRIMARY ADVISOR, OR CO-ADVSIOR*)

- (1) Claudina Kwok (with Dr. Taban Seif) 2017 – present
- (2) Leena Priya Makani* (in progress, estimated Spring 17)— Biochemistry of acetylcholinesterase in *Tritonia* 2016 – present
(with Dr. Monika Sommerhalter)
- (3) Archana Patel (in progress, estimated Summer 17)— Effects of neurotoxic prey on neurons and cancer cells 2012 – present
- (4) Samantha Zacarias (in progress, estimated Summer 17)— Elucidating the neural circuit involved in chemotaxis in *Tritonia tetraquetra* 2013 – present
- (5) Kelsey Wallace (in progress, estimated Spring 17)— Diurnal crawling rhythms in *Tritonia tetraquetra* 2014 – present
- (6) Hank Coshnear* Tracing of accumbens and amygdala neurons reveals distinct clusters in the compulsive alcohol-seeking circuit (with Dr. Taban Seif) 2014 – 2016
- (7) Allie Sherman Morphometric and kinematic analyses of ciliary locomotion in *Tritonia tetraquetra* 2008 – 2012
- (8) Nathan Shapiro Chemical Defense Strategies of the Pacific Nudibranch, *Tritonia diomedea* 2009 – 2012
- (9) Darcy Kato Activity of magnetosensitive Pd5 ciliary motor neurons while crawling in a geomagnetic field 2008 – 2010
- (10) Roger Redondo A Single Neuron Serves A Significant Role in Effecting Turning While Crawling in the Marine Slug *Tritonia diomedea* (Bergh)
- (11) Krishnapraveen Yadlapalli– Ciliated sensory receptors and sensory responses to water flow in the sea slug *Tritonia diomedea*

MEETING PRESENTATIONS: (STUDENT COLLABORATORS ARE UNDERLINED)

- (1) Second International Conference on Game Jams, Hackathons and Game Creation Events [San Francisco, CA; February 2017] Brain Jam - STEAM learning through Neuroscience-themed game development, Ian Pollock, **James Murray** and Beth Yeager (paper & oral presentation)
- (2) Society for Integrative and Comparative Biology [New Orleans, LA; January 2017]. Ciliary-driven currents may enhance olfactory sampling in nudibranch gastropods, Ames AM, **Murray JA** (Poster presentation)
- (3) Society for Neuroscience [San Diego; November 2016]. Game jam with brain bee: STEAM learning through neuroscience-themed game development, **Murray JA**, Pollock I, Leal D, Bobino C, Yeager E, Yao TJ, Hain J, Zib K (Poster presentation)
- (4) Society for Integrative and Comparative Biology [Portland, OR; January 2016]. Elucidating the neural circuit involved in chemotaxis in *Tritonia tetraquetra*, Zacarias S, **Murray JA** (Poster presentation)

- (5) Society for Integrative and Comparative Biology [Portland, OR; January 2016]. How water flow interacts with the olfactory tentacle of the nudibranch *Tritonia tetraquetra*. Oglesby TL, **Murray JA**, Cain SD (Poster presentation)
- (6) Society for Integrative and Comparative Biology [Portland, OR; January 2016]. No evidence of magnetic sensitivity in *Armina californica* behavior or in neurons homologous with *Tritonia tetraquetra*, Schneider WB, **Murray JA** (Poster presentation)
- (7) Society for Integrative and Comparative Biology [West Palm Beach, FL; January 2015]. Behavioral and neural activity during magnetic stimulation of *Tritonia tetraquetra* imply conditional magnetotactic response, Beron C, **Murray J** (Slide presentation)
- (8) Society for Integrative and Comparative Biology [West Palm Beach, FL; January 2015]. The mitochondrial genomes of the nudibranch mollusks, *Melibe leonina* and *Tritonia diomedea*, and their impact on gastropod phylogeny, Sevigny JL, Thomas WK, Ramsdell JS, Sharifi O, Grewal SS, Baysdorfer C, Curr K, **Murray JA**, Newcomb JM (Poster presentation)
- (9) International Congress of Neuroethology [Sapporo, Japan; July 2014]. Loss of scent while following plume results in search-like behavior with little evidence of reliance on geomagnetic cues in the nudibranch *Tritonia tetraquetra*, **Murray JA**, Linney MD, Beron C (Poster presentation)
- (10) Genomes to Biomes Joint Conference [Montreal, Canada; May 2014]. Orienteering slugs: A potential role for magnetoreception in primarily odourbased navigation by the nudibranch *Tritonia diomedea*. Wyeth, RC, **Murray JA** (Slide presentation)
- (11) NH-INBRE Annual Conference [Hanover, NH, Aug 3-4, 2014]. The mitochondrial genomes of the nudibranch mollusks, *Melibe leonina* and *Tritonia diomedea* and their impact on gastropod phylogeny, Sevigny JL, Thomas WK, Ramsdell JS, Sharifi O, Grewal SS, Baysdorfer C, Curr K, **Murray JA**, Newcomb JM
- (12) Council for Ocean Affairs, Science and Technology-Water Resources Policy Initiative Poster Showcase (Long Beach, CA; March 23, 2014) The Role of Indoleamines In The Cyclical Behavior of *Tritonia tetraquetra*. Wallace KR, Callaghan M, **Murray JA**, Bell J (Poster presentation)
- (13) Society for Integrative and Comparative Biology [Austin, TX; January 2014]. Loss of scent while following plume results in search-like behavior with no evidence of reliance on geomagnetic cues in the nudibranch *Tritonia tetraquetra*, Linney MD, **Murray JA** (Poster presentation)
- (14) CSUPERB symposium [January 2013; Anaheim, CA] The detoxification enzyme glutathione-S-transferase (GST) from the digestive gland of the marine gastropod *Tritonia diomedea*, S. Huang, T. Amagata, **Murray JA**, M. Sommerhalter (Poster presentation)
- (15) Society for Integrative and Comparative Biology [San Francisco, CA; January 2013]. Exploration of the role of indoleamines in the cyclical behavior of *Tritonia diomedea*, Wallace KR, Callaghan M, **Murray JA**, Bell J (Poster presentation)
- (16) Society for Integrative and Comparative Biology [San Francisco, CA; January 2013]. An investigation of the statocyst sensory system in *Armina californica*, Gill KP, Rice JL, **Murray JA**, Cain SD (Poster presentation)
- (17) Society for Integrative and Comparative Biology [San Francisco, CA; January 2013]. Distribution of ciliated cells and identification of putative olfactory receptors in a novel chemosensory organ in the nudibranch *Tritonia diomedea*, Gallagher, CA, **Murray JA**, Cain SD, Choate BA (Poster presentation)
- (18) CSU Biotechnology Symposium (Santa Clara CA; Jan 2012), The characterization of antifeedant/defensive properties of a Pacific coast opisthobranch *Tritonia tetraquetra* (Bergh) and its octocoral prey *Ptilosarcus gurneyi* (Gray), NS Shapiro, BA Choate, MH Huynh, **JA Murray** (Poster presentation)
- (19) Society for Integrative and Comparative Biology [Charleston, SC; January 2012]. The characterization of antifeedant/defensive properties of a Pacific coast opisthobranch *Tritonia tetraquetra* (Bergh) and its octocoral prey *Ptilosarcus gurneyi* (Gray), NS Shapiro, BA Choate, MH Huynh, **JA Murray** (Poster presentation)
- (20) CSU Biotechnology Symposium (Santa Clara CA; Jan 2012), The marine gastropod *Tritonia diomedea* expresses different forms of acetylcholinesterase in its hemolymph and in different parts of its central nervous system, V Tran, M Kaur, **JA Murray**, M Sommerhalter (Poster presentation)
- (21) CSU Biotechnology Symposium (Santa Clara CA; Jan 2012), Purification and characterization of the detoxification enzyme glutathione-S-transferase (GST) from the digestive gland of the marine gastropod *Tritonia diomedea*, S Huang, **JA Murray**, T Amagata, M Sommerhalter (Poster presentation)
- (22) Biological Sciences Student Research Symposium (May 2011), The characterization of antifeedant/defensive properties of a Pacific coast opisthobranch *Tritonia diomedea* (Bergh) and its prey species *Ptilosarcus gurneyi* (Gray). NS Shapiro, BA Choate, MH Huynh, **JA Murray** (Poster presentation)
- (23) CSUEB Research, Scholarship & Creative Activity Poster Exhibit (May 2011), Description of a novel chemosensory organ in the nudibranch *Tritonia diomedea*, CA Gallagher, D Rohozinski, K Stanton, **JA Murray**, SD Cain (Poster presentation)
- (24) CSU Biotechnology Symposium [Anaheim, CA; January 2011] Acetylcholinesterase activity in the marine slug *Tritonia*

diomedea is modestly inhibited by the toxin ptilosarcenone derived from the slug's food source *Ptilosarcus gurneyi*, V Tran, **JA Murray**, T Amagata T, M Sommerhalter (Poster presentation)

- (25) Society for Integrative and Comparative Biology [Salt Lake City, UT; January 2011]. Mucociliary interactions in the foot of the sea slug *Tritonia diomedea*, U Tahir, ML Schroer, **JA Murray**, SD Cain (Poster presentation)
- (26) Society for Integrative and Comparative Biology [Salt Lake City, UT; January 2011]. The effect of cholinesterase inhibition in buccal ganglia of *Tritonia diomedea*, DJ Cha G, **JA Murray** (Poster presentation)
- (27) Society for Integrative and Comparative Biology [Salt Lake City, UT; January 2011]. Description of a novel chemosensory organ in the nudibranch *Tritonia diomedea*, CA Gallagher, D Rohozinski, K Stanton, **JA Murray**, SD Cain (Poster presentation)
- (28) Society for Integrative and Comparative Biology [Salt Lake City, UT; January 2011]. Effect of light on locomotor activity in the marine nudibranch mollusk *Tritonia diomedea*, JM Clinton, MH Huynh, **JA Murray** (Poster presentation)
- (29) Society for Integrative and Comparative Biology [Salt Lake City, UT; January 2011]. Potential Egg Laying Role of Asymmetric White Cells of *Armina californica*, K Krueger, JA Stafstrom, **JA Murray** (Poster presentation)
- (30) Society for Integrative and Comparative Biology [Salt Lake City, UT; January 2011]. The effect of ocean acidification on the nudibranch mollusk *Tritonia diomedea*, MH Huynh, KK Andrienas, **JA Murray** (Poster presentation)
- (31) Society for Integrative and Comparative Biology [Seattle, WA; January 2010]. Analysis of activity of *Tritonia* in light versus dark settings, G Singh, MH Huynh, **JA Murray** (Poster presentation)
- (32) Society for Integrative and Comparative Biology [Seattle, WA; January 2010]. The activity of a magnetically responsive ciliary motor neuron during crawling in normal and reversed magnetic field in the nudibranch *Tritonia diomedea*, DF Kato, MH Huynh, J Minter, G Singh, **JA Murray** (Poster presentation)
- (33) Society for Integrative and Comparative Biology [Boston, MA; January 2009]. Inactivation of an identified neuron reduces oriented turning toward the inactivated side in the sea slug *Tritonia diomedea*, Sherman A, **Murray JA**, Tran N, Hammoudi AH (Poster)
- (34) Society for Integrative and Comparative Biology [Boston, MA; January 2009]. The influence of odor cues, water flow, and magnetic fields on the orientation of the sea slug *Tritonia diomedea*. Jones A, **Murray JA**, Cain SD, Wyeth R (Poster)
- (35) Eighth International Congress of Neuroethology [Vancouver, BC; July 2007]. Structure and distribution of putative ciliated receptors on the oral veil of *Tritonia diomedea*. Yadlapalli K, **Murray JA** (Poster)
- (36) Society for Integrative and Comparative Biology meeting [Phoenix, AZ; January 2007]. Sensory cells are denser in the lateral portion of the oral veil of *Tritonia diomedea*. Igwe OB, Shaun D. Cain, **Murray JA** (Poster)
- (37) Society for Neuroscience 36th Annual Meeting [Atlanta, GA; Oct 2006]. Research apprenticeship teams in neuroethology of orientation and navigation: An intensive research training program for undergraduates/post-baccalaureates at the Friday Harbor Labs. **Murray JA**, SD Cain, AOD Willows (Poster)
- (38) American Academy for the Advancement of Science symposium: Anti-Evolutionism in America: What's Ahead? [St. Louis, MO; February 2006]. Is Neuroscience the Next Target?, **Murray JA**, Tinkler GP (Talk)
- (39) Society for Integrative and Comparative Biology Symposium: Recent Developments in Neurobiology [Orlando, FL; January 2006]. Advances in the neural bases of orientation & navigation, **Murray JA** (Talk)
- (40) Society for Integrative and Comparative Biology meeting [Orlando, FL; January 2006]. Neuronal control of mucociliary interactions in *Tritonia diomedea*, McDole TS, **Murray JA**, Cain, SD (Poster)
- (41) UCA- College of Natural Sciences and Mathematics, 11th Annual Student Research Symposium, [Conway, AR; April 2005]. A single neuron causes foot contractions that lead to turning in the marine slug *Tritonia diomedea*, Morrison J, **Murray JA** (Poster)
- (42) 13th Annual Arkansas Space Grant Consortium Symposium [Fayetteville, AR: April 2005]. Microscopic flow sensors in the sea slug *Tritonia diomedea* could be imitated for use in aero-elastic wings. Kersh BD, **Murray JA** (Poster)
- (43) Society for Neuroscience 34th Meeting [San Diego, CA; Oct 2004]. The roles of single neurons in turning while crawling during orientation to water flow in the marine slug *Tritonia diomedea*. Morrison J, Redondo R, **Murray JA** (Poster)
- (44) Seventh International Congress of Neuroethology [Nyborg, Denmark; Aug 2004]. The roles of single neurons in turning while crawling during orientation to water flow in the marine slug *Tritonia diomedea*. **Murray JA**, Redondo R, Morrison J, Alexander J (Poster)
- (45) Arkansas Undergraduate Research Conference [Arkadelphia, AR; April 2004]. Role of pedal three neuron in turning of *Tritonia diomedea*, Morrison J, **Murray JA** (Poster)
- (46) UCA- College of Natural Sciences and Mathematics, 10th Annual Student Research Symposium, [Conway, AR; April 2004]. Role of pedal three neuron in turning of *Tritonia diomedea*, Morrison J, **Murray JA** (Poster)
- (47) Society for Neuroscience 33rd Annual Meeting [New Orleans, LA; Nov 2003]. Contribution of a single neuron to control of

- orientation in the nudibranch gastropod *Tritonia diomedea*, **Murray JA**, Redondo R, Alexander J (Poster)
- (48) Society for Neuroscience 33rd Annual Meeting [New Orleans, LA; Nov 2003]. Adaptation and implementation of an NSF-sponsored project (Crawdad Project) at a medium-size southern public university, **Murray JA** (Poster)
- (49) University of Central Arkansas TechFest, [Conway, AR; April 2003]. Digital video: How to record, upload, analyze, and distribute digital video, **Murray JA** (Talk)
- (50) UCA- College of Natural Sciences and Mathematics, 9th Annual Student Research Symposium, [Conway, AR; April 2003]. Single neuron contribution to turning while crawling in the marine slug *Tritonia diomedea*, Redondo R, **Murray JA** (Poster)
- (51) Society for Neuroscience 32nd Annual Meeting [Orlando, FL; Nov 2002]. Evolution under attack: how neuroscientists can address the creationist movement, Tinkler GP, Branch G, **Murray JA** (Poster)
- (52) Society for Neuroscience 32nd Annual Meeting [Orlando, FL; Nov 2002]. Single neuron contribution to turning while crawling in the marine slug *Tritonia diomedea*, Redondo R, **Murray JA** (Poster)
- (53) Friday Harbor Laboratories Seminar [Friday Harbor, WA; June 2002]. Role of a single neuron in turning while crawling in the marine slug *Tritonia diomedea*, Redondo R, **Murray JA** (Talk)
- (54) University of Central Arkansas TechFest, [Conway, AR, April 2002]. Lab reports on the web: Sharing data, and peer review with students at other universities., **Murray JA** (Talk)
- (55) Arkansas Academy of Sciences [Little Rock, AR; April 2002]. Mechanisms of turning while crawling in the marine slug *Tritonia diomedea*, Alexander JD, **Murray JA** (Talk)
- (56) Arkansas Academy of Sciences [Little Rock, AR; April 2002]. Role of a single neuron in turning while crawling in the marine slug *Tritonia diomedea*, Redondo R, **Murray JA** (Talk)
- (57) UCA- College of Natural Sciences and Mathematics, 8th Annual Student Research Symposium, [Conway, AR; April 2002]. Water flow receptors in a marine slug, Blackwell J, **Murray JA** (Poster)
- (58) UCA- College of Natural Sciences and Mathematics, 8th Student Research Symposium, [Conway, AR; April 2002]. Role of a single neuron in turning while crawling in the marine slug *Tritonia diomedea*, Redondo R, **Murray JA** (Poster)
- (59) Society for Integrative and Comparative Biology [Anaheim, CA; Jan 2002]. Fine-wire recording of motor neuron activity during free, oriented locomotion in *Tritonia diomedea*, Redondo R, **Murray JA** (Talk)
- (60) Society for Neuroscience 31st Annual Meeting [San Diego, CA; Nov 2001]. Role of pedal 3 neurons in turning while crawling in the marine slug *Tritonia diomedea*, Good CH, Redondo R, Alexander J, **Murray JA** (Poster)
- (61) Arkansas Chapter of the Society for Neuroscience [Little Rock, AR; Nov 2001]. Role of pedal 3 neurons in turning while crawling in the marine slug *Tritonia diomedea*, Good CH, Redondo RL, Alexander J, **Murray JA** (Poster)
- (62) Sixth International Congress of Neuroethology [Bonn, Germany; Aug 2001]. Orientation of the nudibranch sea slug *Tritonia diomedea* to tidal water flow and the geomagnetic field in nature, **Murray JA**, Willows AOD. (Poster)
- (63) Ninth Annual Arkansas Space Grant Consortium Symposium [Searcy, AR; April 2001]. Directional flow receptors: role in reducing drag, **Murray JA**, Vacca JA, Walton E, Redondo R (Talk)
- (64) Arkansas Academy of Sciences [Conway, AR; April 2001]. Role of individual neurons in turning while crawling in the marine slug *Tritonia diomedea*, Good CH, Redondo R, Alexander J, **Murray JA** (Talk)
- (65) Society for Neuroscience 29th Annual Meeting [Miami Beach, FL; Oct 1999]. Dynamic forces in swim muscles of medicinal leeches, **Murray JA** and Kristan WB Jr (Poster 364.5)
- (66) Fifth International Congress of Neuroethology [San Diego, CA; Aug 1998]. Dynamic forces in swim muscles of medicinal leeches, **Murray JA** and Kristan WB Jr (Poster 174)
- (67) Society for Neuroscience 26th Annual Meeting [Washington, DC; Nov 1996]. Motor neuron activity in freely swimming medicinal leeches, **Murray JA**, Wilson RJA, and Kristan WB Jr (Poster 428.17)
- (68) Western Nerve Net [Bamfield, BC; April 1996]. Motor neuron activity in freely swimming medicinal leeches, **Murray JA**, Wilson RJA, and Kristan WB Jr
- (69) Fourth International Congress of Neuroethology [Cambridge, UK; Sept 1995]. Spectral and temporal analysis of male and female courtship signals in the gymnotiform electric fish *Apteronotus leptorhynchus*, **Murray JA** (Poster 412)
- (70) Marine Biology Seminar, Scripps Institution of Oceanography [La Jolla, CA; July 1994]. Neural correlates of orientation to water flow in *Tritonia diomedea*, **Murray JA**
- (71) Society for Neuroscience 23rd Annual Meeting [Washington, DC; Nov 1993]. Orientation to water-flow in *Tritonia*: Roles of single identified neurons, **Murray JA** and Willows AOD (Poster 70.12)
- (72) Society for Neuroscience 23rd Annual Meeting [Washington, DC; Nov 1993]. Neurosciences hall of fame. Watson III WH, Brown G, and **Murray JA** (Poster)
- (73) Third International Congress of Neuroethology [Montreal, Canada; Aug 1992]. Orientation to water-flow in *Tritonia*: Brain

- structures associated with rheotaxis, **Murray JA**, Brown G, and Willows AOD (Poster 191)
- (74) Western Nerve Net [La Jolla, CA; April 1992]. Motor neurons causing turning into water flow, **Murray JA** and Willows AOD (Talk)
- (75) Society for Neuroscience 21st Annual Meeting [New Orleans, LA; Nov 1991] Orientation to water-flow in *Tritonia*: Brain structures associated with rheotaxis, **Murray JA** and Willows AOD (Poster 559.5)
- (76) Society for Neuroscience 20th Annual Meeting [St. Louis, MO; Oct 1990]. Orientation to water-flow in *Tritonia*: Neural basis of rheotaxis, **Murray JA** and Willows AOD (Poster 313.3)
- (77) Society for Neuroscience 18th Annual Meeting [Toronto, Canada; Nov 1988]. Courtship success in the cricket *Gryllus bimaculatus*: Differential contribution of carrier frequency and harmonics in courtship song, **Murray JA** and Hoy RR (Talk 128.4)

PROFESSIONAL SERVICE:

Reviewer, Council on Ocean Affairs, Science, & Technology, Grant Development Program	June 2016
Ad hoc reviewer (anonymous), for Global Change Biology journal	May 2016
Reviewer, Council on Ocean Affairs, Science, & Technology, Graduate student Research Award proposal	December 2015
Ad hoc reviewer (anonymous), for Journal of Marine and Freshwater Behavior and Physiology,	October 2015
Education Council Member for the Society for Integrative and Comparative Biology	Jan 2015 - 2017
Ad hoc reviewer (anonymous), grant proposal to Natural Sciences and Engineering Research Council of Canada	Winter 2015
Ad hoc reviewer (anonymous), for two submissions to Journal of Experimental Biology	Summer 2014
Webinar co-presenter for ADInstruments LabTutor (EKG, Heart Sounds, Pulse timing)	Spring 2014
Scientific consultant on a Port of Vancouver dock project (expert on <i>Ptilosarcus gurneyi</i>)	Winter 2013
Ad-hoc peer-reviewer of review manuscript, Frontiers in Decision Neuroscience	Spring 2012
COAST-CSUMB summer undergraduate research program mentor	Summer 2012
Judge, Postdoctoral Travel Award, SF Bay Area Chapter of the Society for Neuroscience	2011
COAST Network: Environmental Effects on Marine Life (EEML) [http://www.calstate.edu/coast/eeml/]	2011 - present
Clergy Letter Project Voluntary Scientific Consultant	2010 - present
Published Edu-Snippet on teaching diffusion in the Human Anatomy and Physiology Educator newsletter	Spring 2011
Ad hoc reviewer (anonymous), Journal of Neurophysiology	2000 - 2011
Mentor, NSF-Research Experience for Undergraduates (4 students, Friday Harbor Laboratories)	2010, 2013, 2014, 2015
Mentor, Blinks Fellowship Program to Enhance Diversity (4 students, Friday Harbor Laboratories)	2004, 2006, 2009, 2015
Judge, Best Student Presentations, Division of Neurobiology, Society for Integrative and Comparative Biology	2009 – 2012
Ad hoc reviewer (anonymous), Journal of Comparative Physiology A: Sensory, Neural, and Behavioral Physiology	2008, 2013
Chair, Division of Neurobiology, Society for Integrative and Comparative Biology,	2007– 2012
Reviewer, Scholarpedia article on " <i>Tritonia</i> "	2007
Webmaster, Arkansas Chapter of the Society for Neuroscience,	2006 – 2007
Judge, student posters presentations at the meeting of the Arkansas Chapter of the Society for Neuroscience	2003, 2006
Interview with The Wall Street Journal, about neuroscience and intelligent design	2006
Interview with The Los Angeles Times, about neuroscience and intelligent design	2006
Interview with science editor of The New York Times, about neuroscience and intelligent design	2006
Interview with The Chronicle of Higher Education, about neuroscience and intelligent design	2006
Interview with Stanford Medicine magazine, about opposition to evolution in biomedicine	2006
Panelist on academic freedom, American Association of University Professors, Arkansas Chapter meeting	2005
Reviewer, McGraw-Hill Biology textbook and electronic materials	2005 – 2006
NSF panelist reviewing Sensation & Movement grant proposals, Div. Integrative Organismal Biology	2005 – 2006
Ad hoc reviewer (anonymous), Murdock College Research Program for Life Sciences (grant proposal)	2004
Ad hoc reviewer (anonymous), Journal of Undergraduate Neuroscience Education	2004 – 2006
NSF panelist reviewing Course, Curriculum, & Laboratory Improvement grant proposals, Div. Undergrad Education	2004
Ph.D. committee member for U. Arkansas for Medical Sciences student Cameron Good	2004
Beta tester for literature reference visualization program	2004
Beta tester for PsyCog virtual biophysical/cognitive experiment software [NSF project]	2004
Ad hoc reviewer (anonymous), Journal of the Arkansas Academy of Sciences	2003

Ad hoc reviewer (anonymous), NSF, Div. Integ. Bio. & Neuro. (IBN), Div. Integ. & Organismal Bio. (IOB)	2002 – present
Ad hoc reviewer (anonymous), Journal of Experimental Biology	2002
Symposium Organizer, Society for Integrative and Comparative Biology, Division of Neurobiology	2001 – 2002
Reviewer, McGraw-Hill text publication in human physiology	2001
Local arrangements committee, Arkansas Academy of Sciences annual meeting	2001
Ad hoc reviewer (anonymous), Journal of Neurophysiology	2000
Member, Education Outreach Committee, International Society for Neuroethology	2000 – 2001
Reviewer, Introduction to Neuroscience, by Gary G. Matthews, Blackwell Science, 2000	1999
Ad hoc reviewer (anonymous), Comparative Biochemistry & Physiology	1994

COMMUNITY SERVICE:

Working Lunch interview & Tabling for high school students; 2017 East Bay STEM Career Awareness Day, 4-27	Spring 2017
Hands On Science Teaching program, 30 middle school students learn about confocal microscopy	Fall 2016
Oakland High School Environmental Science Academy (ESA) outreach, a California Partnership Academy	2015
STEM Career Awareness Day: CSUEB BIOL SCI workshop tabling representative, Emeryville	2015
STEM Career Awareness Day: Science Panel, Berkeley City College	2013
Bay Area Brain Bee annual organizer, judge & CSUEB host for K-12 students and parents	2011 - present
Marine Science Public Outreach- FHL Annual Beach Walk	2010 - present
Presentation on local marine animals to Dash Point Social & Improvement Club	2010
Human Body presentation, Alice's Montessori School, Pleasant Hill, CA	2010 – 2011
Science Fair judge- Walnut Heights Elementary, Walnut Creek, CA	2010
Eagle Rock Summer Camp, presentation of marine invertebrates from the Friday Harbor Labs	2009 – 11
CSUEB Science Festival activities (Recording from Giant Brain Cells, Giant Orange Sea Slugs & Magnetism)	2009
Presentation of research, Northwest Aquatic and Marine Educators conference, Friday Harbor, WA	2008
Science Fair judge- Walnut Heights Elementary	2008
Brain Awareness Week activities at the Discovery Museum (Little Rock, AR)	2007
Society for Neuroscience Neuroscientist/Teacher Partner	2004 – 2006
Brain Awareness Week Public Lectures on Neuroscience Research at UCA (speaker and organizer)	2004
Summer SEM Workshop for Students (pairs of K-12 & UCA students)	2004 – 2006
Science Night at St. Joseph's School, brain-related activities for K-12 students	2002 – 2007
Brain Awareness Week activities, in Conway K-12 classes (participant & organizer)	2002
High School Science Workshops at UCA (participant)	2001 – 2002
Director, Intel Science Talent Search for Arkansas	2000 – 2004
Judge, Annual State Science Fair, Arkansas Society for Neuroscience & In Vitro Biology prizes	2000 – 2005
Judge, Central Arkansas Regional Science Fair	2000 – 2001
Judge, Arkansas Junior Academy of Sciences	2000
Member, Brain Awareness Week Committee, Arkansas Chapter of the Society for Neuroscience	2000 – 2004
Moderator, state listserv on evolution education	2000 – 2007
Organizer, Annual Conference of Undergraduate Research in Biology, Colby College	1999

UNIVERSITY & COLLEGE SERVICE:

Mock Interview Judge for Institute for STEM Education Coaching & Selection of Interns Workshop	Jan 27, 2017
CSUEB Media Expert for Office of University Communications	2016 - present
Faculty Workload Senate Task Force (appointed by Excomm)	2015 - 2017
Faculty Affairs Committee of the Academic Senate (Chair 15-17; member of RTP & Teaching Evaluation subcommittees)	2015 - 2017
Autism subcommittee of Inclusive Education committee	2015 - 2016
Member, Dean of the College of Science Search Committee (hired Jason Singley)	2015
Member of the Academic Senate, At-Large representative	2015 - 2017
Western Interstate Commission for Higher Education (WICHE) Passport Project, Natural Sciences (appointed by the ASCSU Executive Committee)	2015
CSCI representative Affordable Learning Subcommittee of the Senate Curriculum and Instruction Committee	2014 – 2016
Faculty Affairs Committee (CSCI representative; 1-year term 14-15, then 2-year term 15-17)	2014 – 2017
Interview by PioneerTV about nature of perception	Spring 2014
Prerequisite Task Force of the Senate, member	Winter 2013
Transfer Credit Advisory Group (TCAG) of the Student Success and Assessment Committee	Winter 2013
Online Instruction Policy Task Force of the Academic Senate (chair)	2012 – 2013

Program Prioritization Steering Committee (as Chair of Committee on Instruction & Curriculum)	2012 – 2013
Grant seeking at CSUEB (New Faculty Orientation, Faculty Development Center)	2012
Executive Committee of the Academic Senate (at-large member)	2012 – 2015
Assist SCAA in developing peer tutor program from Anatomy & Physiology courses	Fall 2012
A2E2 Committee for the College of Science	2011 – 2012
Undergraduate Research Advisory Group (chair is Linda Dobb)	2011 – 2012
Faculty Hearing Panel	2011 – 2012
Biological Sciences Graduate Committee member	2010 – 2012
University Planning, Assessment, and Budget Committee (UPABC)	2011 – 2012
CSUEB Faculty Senate Committee on Instruction & Curriculum (Chair 2011-2014)	2010 – 2014
Technology & Instruction sub-committee of the CIC	2011 – 2014
Basic Skills sub-committee of the CIC	2011 – 2014
Faculty Marshal at College of Science commencement and honors convocation	2008 & 10,11
Interviews by students for General Studies course (GS1021; 4 students)	2010
Representative to CSU Council on Ocean Affairs, Science and Technology (COAST)	2009 – present
University IT Advisory Committee	2009 – present
COS Computer Committee	2009 – present
COS Science Festival committee- Biological Sciences representative (CSUEB)	2009 & 2011
Basic Skills Subcommittee jury pool, of the Committee on Instruction and Curriculum (CSUEB)	2008 – 2009
Board of Governors, Moss Landing Marine Laboratories, CSUEB Biological Sciences co-representative	2008 – present
Computer Advisory Committee (CSUEB)	2008 – present
Hosted presentation by nature photographer Susan Middleton at CSUEB May 8	2008
Committee to create Masters of Science Education (UCA)	Fall 2006 – 07
Faculty mentor to one CNSM faculty	2006 – 2007
Joint Graduate Council (UCA, UALR, UAMS)	2006
Graduate Council member	2005 – 2007
Faculty Senate (College of Natural Sciences and Mathematics representative)	2005 – 2007
Founder and organizer of the UCA–Macintosh User Group	2005 – 2006
University Research Committee, at-large member (chair of CNSM committee 2004 – 2005)	2004 – 2006
Interdisciplinary masters degree program committee	2003 – 2005
Faculty teaching excellence award committee	2006 – 2007
Scanning Electron Microscopy committee	2002 – 2007
Oral & demonstrations at UCA TechFest	2002 – 2003
Challenge Week 2003 committee– Organizing invited talks on subject of evolution and intelligent design	2002 – 2003
Faculty research awards committee	2002 – 2003
Academic computing advisory committee	2000 – 2003
Sponsored programs advisory committee	2000 – 2003
College Research (URC) committee (Chairperson, 2004 – 2005)	2000 – 2001, 2003 – 2006
Mentor for Honors College interdisciplinary theses:	
Andy Wiles, “Biomechanics of orientation to water flow”	2006 – 2007
Jim Coghlan, “Comparative sociology of humans and dolphins”	2006 – 2007
Jeffrey Blackwell, “Neuronal Responses to Water Flow in the Marine Slug <i>Tritonia diomedea</i> ”	2003
Jennifer Gardner, “The Genesis and Enigma of Aggression”	2002
Sarah Abbott, “Drawing the Line Between Real and False Memory”	2001
Coordinator of the Major Field Tests in sciences	2001 – 2002
College graphics room & computer consultant (digital video, scanning, slide making, wide-carriage printing)	2000 – 2004
Proctor for the Major Field Tests in sciences	2000 – 2003

DEPARTMENTAL SERVICE:

Laptops for Biology (proposal, purchase, implement software, security & schedule for 60 laptops in 4 carts)	2011 - present
Physiologist Search Committee (hired Tyler Evans)	
Website maintenance & updates	2011-2013
Assessment of student learning outcomes for 5 year report (with Drs. Inouye and Stone)	2010
Graduate Committee	2010 – present

Masters degree committee member (not chair– Shouyu Chen, Michael Grunow, Mike Klingler, Bridget Schneider, Samantha Wu, Deanna Beach, Danielle Favela, Prima Barischoff (interdisciplinary); Vu Tran & Shuang Huang & Eric Ureno (Chem); Mario Gumina; Adity Biswas; Osman Sharifi)	2008-2011
Website re-design committee (CSUEB)	2008
Self-evaluation of UCA Biology Department Report (1995-2005), committee member, wrote outreach section	2007
Presentation on pre-medical and pre-optometry studies for Bear Facts Day	2005 – 2006
Presentation on summer field opportunities for UCA biology students	2006
Tenure & Promotion committee, (Chairperson Fall 2006)	2005 – 2006
Space committee (Chairperson 2004 – 2005)	2004 – 2005
Search committee (Chairperson 2004 – 2005): Developmental biology faculty member (hired J.D. Swanson)	2004 – 2006
Search committee: Vertebrate physiology faculty member (hired Steve Dinkelacker)	2003 – 2004
Alpha Phi Omega (service fraternity/sorority) faculty advisor	2002 – 2006
Search committee: Human biology faculty member (hired Brent Hill)	2002 – 2003
Search committee: Neurobiology faculty member (hired Barbara Clancy)	2000 – 2001
Biology Club faculty advisor	2001 – 2006
Chairperson's Advisory committee (three semesters)	2001 – 2004
Ad-hoc Lecturer's advancement committee (Dr. Hirrel promoted)	2001
Pre-optometry & pre-med student academic advisor (30-40 advisees/year)	2000 – 2007
Graduate committee (recruiting activities, curriculum development; Chairperson 2005-2006)	2000 – 2006
Aquatic Room coordinator	2000 – 2007
Web committee (creating and being tutor for making web pages)	2000 – 2004
Master's degree committee for ten students (chair of three)	2000 – 2008
Seminar committee chair (13 speakers, 4 from UCA Biology)	2000 – 2002, Fall 2006

INVITED TALKS:

Invited Workshop: Teach and Learning (TAL)-K-12: Scientific Outreach for the K-12 Audience (Case Study on the Brain Jam project)	January 2016
Toward an ecology of brain: neuroethology, ecology, and habitat of the sea slug <i>Tritonia tetraquetra</i> (Friday Harbor Labs, University of Washington; San Francisco State University Fall 2015)	Summer 2014
Giant orange sea slugs and forests of glowing, toxic corals, a physiology playground (San Jose State University)	September 2013
Integrative Neurobiology: Sea Slugs, Giant Brain Cells, Tidal Flow, & Earth's Magnetic Field (Associated Students, CSUEB)	March 2012
Integrative Neurobiology: Sea Slugs, Giant Brain Cells, Tidal Flow, and Earth's Magnetic Field (Pitzer College)	April 2010
Mechanisms of navigation in the sea slug <i>Tritonia diomedea</i> (California Academy of Sciences)	January 2010
Mechanisms of navigation in the sea slug <i>Tritonia diomedea</i> (Cal State Long Beach)	September 2009
Life is upstream: the neurobiology of moving against the tide (Monterey Bay Underwater Explorers)	February 2009
Integrative neurobiology: Sea slugs, giant brain cells, tidal flow, and the earth's magnetic field Moss Landing Marine Lab	September 2008
Spineless Wonders of Puget Sound, California State University- East Bay	February 2008
Life is upstream: The mechanisms of navigation of the Pacific sea slug <i>Tritonia</i> , California State University- East Bay	February 2007
California State University- Channel Islands	February 2007
California Polytechnic University	January 2007
Harding University	January 2007
Giant orange slugs, flying devils, and coral forests, People for Puget Sound Speaker Series	May 2006
Brain and Mind: The Final Frontier, Lyon College convocation	March 2006
Is Neuroscience the Next Target?, AAAS Symposium on Anti-Evolutionism in America: What's Ahead?	February 2006
Advances in the neural bases of orientation & navigation, Recent Developments in Neurobiology symposium	January 2006
Life is upstream: The mechanisms of navigation of the local sea slug <i>Tritonia</i> , Western Washington University	June 2005
The neural substrates of orientation to tidal flow in the marine snail <i>Tritonia diomedea</i> , U Edinburgh	August 2004
How to adapt and implement a model for scientific education, Society for Neuroscience NSF workshop	November 2003
Control of direction of locomotion by single neurons using fine-wire implanted electrodes, U Ark Med Sciences	April 2003
Neuroscience research at UCA, annual meeting of the Arkansas Chapter of the Society for Neuroscience	October 2002
Brain and Mind: The Final Frontier, College of Natural Sciences and Mathematics, UCA Public Lecture	November 2000
Neural correlates of rheotaxis in a marine slug	

U. Arkansas, Department of Biology	January 2001
U. Oklahoma, Department of Zoology	December 2000
Ten Ways to Die in Australia, UCA Biology Club	September 1999
Life is upstream: Physiology of flow sensitivity in a marine snail	
U. Central Arkansas, Department of Biology	February 1999
Pacific Lutheran University, Department of Biology	February 1999
Monmouth College, Department of Biology	February 1999
Neural analysis of orientation to water flow in a marine snail	
Drew University, Department of Biology	April 1998
California State University, San Marcos, Department of Biology	April 1997
Truman State University, Department of Biology	March 1997
Colby College, Department of Biology	December 1996
University of Oregon, Institute of Neuroscience	March 1994
Divine justice, sea slugs, and Greek mythology, Friday Harbor Laboratories	June 1993

HONORS AND AWARDS:

Finalist, UCA Research, Scholarship, & Creative Activity Award (\$500)	AY 2006 – 2007
Grass Foundation Fellowship in Neuroscience, Friday Harbor Laboratories	Summer 1997
Distinguished Service Key, Alpha Phi Omega	May 1988
High Honors for Independent Research, The relative contributions of the courtship song carrier frequency and its harmonics to courtship success in <i>Gryllus bimaculatus</i> (De Geer)	May 1988
Graduated with Distinction for Grade Point Average (3.74)	May 1988
Cornell Tradition Summer Fellowship	1987
Cornell Tradition Academic Fellowship	1985 – 1988

MEMBERSHIPS:

California Faculty Association	2008 – present
Human Anatomy and Physiology Society	2007 – present
American Association of University Professors	2004 – 2007
American Institute of Biological Sciences	2002 – present
Arkansas Academy of Science	2001 – 2004
Council on Undergraduate Research	2000 – 2003
Society for Integrative and Comparative Biology, Divisions of Neurobiology & Animal Behavior	1999 – present
Faculty for Undergraduate Neuroscience	1994 – present
National Center for Science Education	1994 – present
International Society for Neuroethology	1993 – present
Society for Neuroscience	1988 – present

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